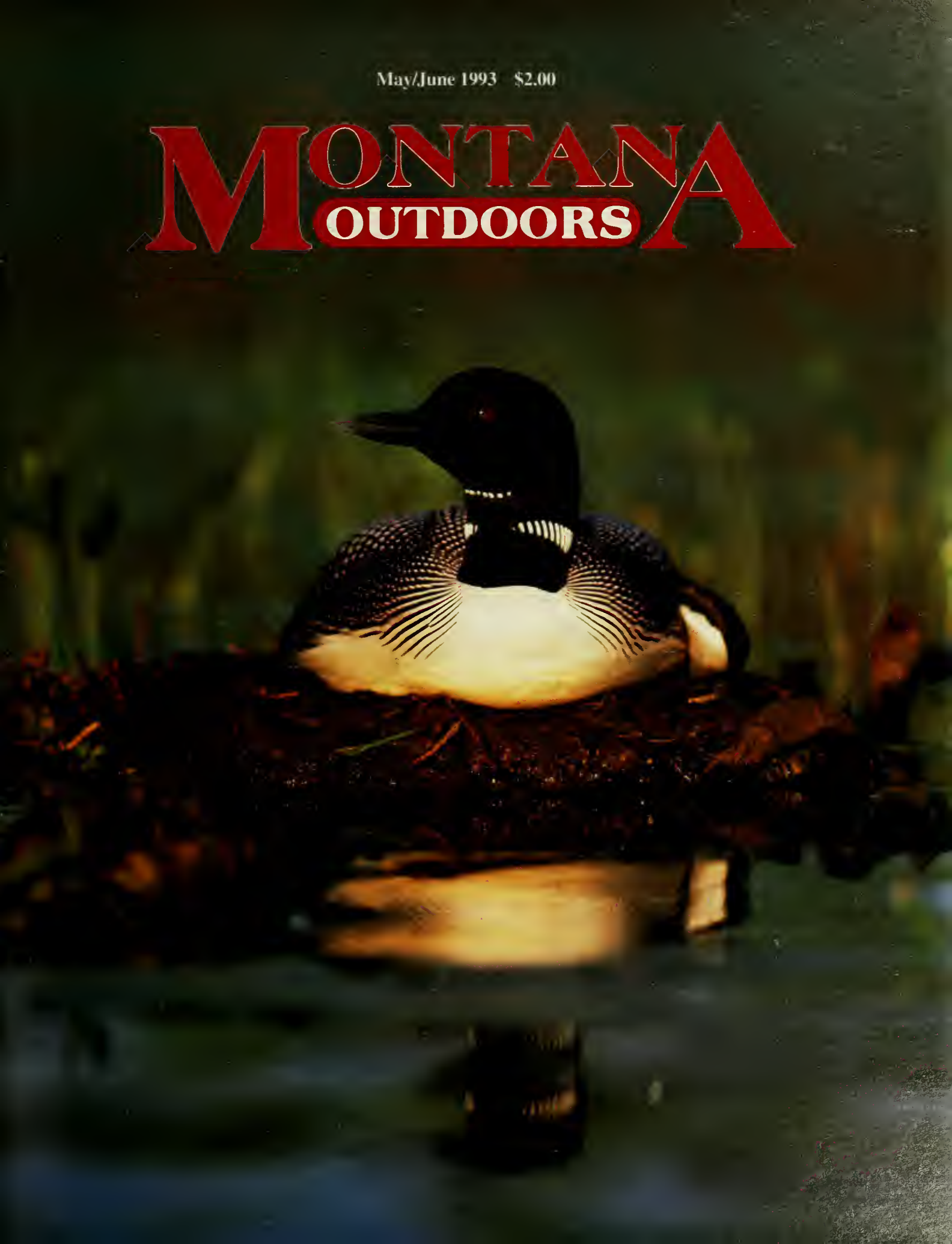
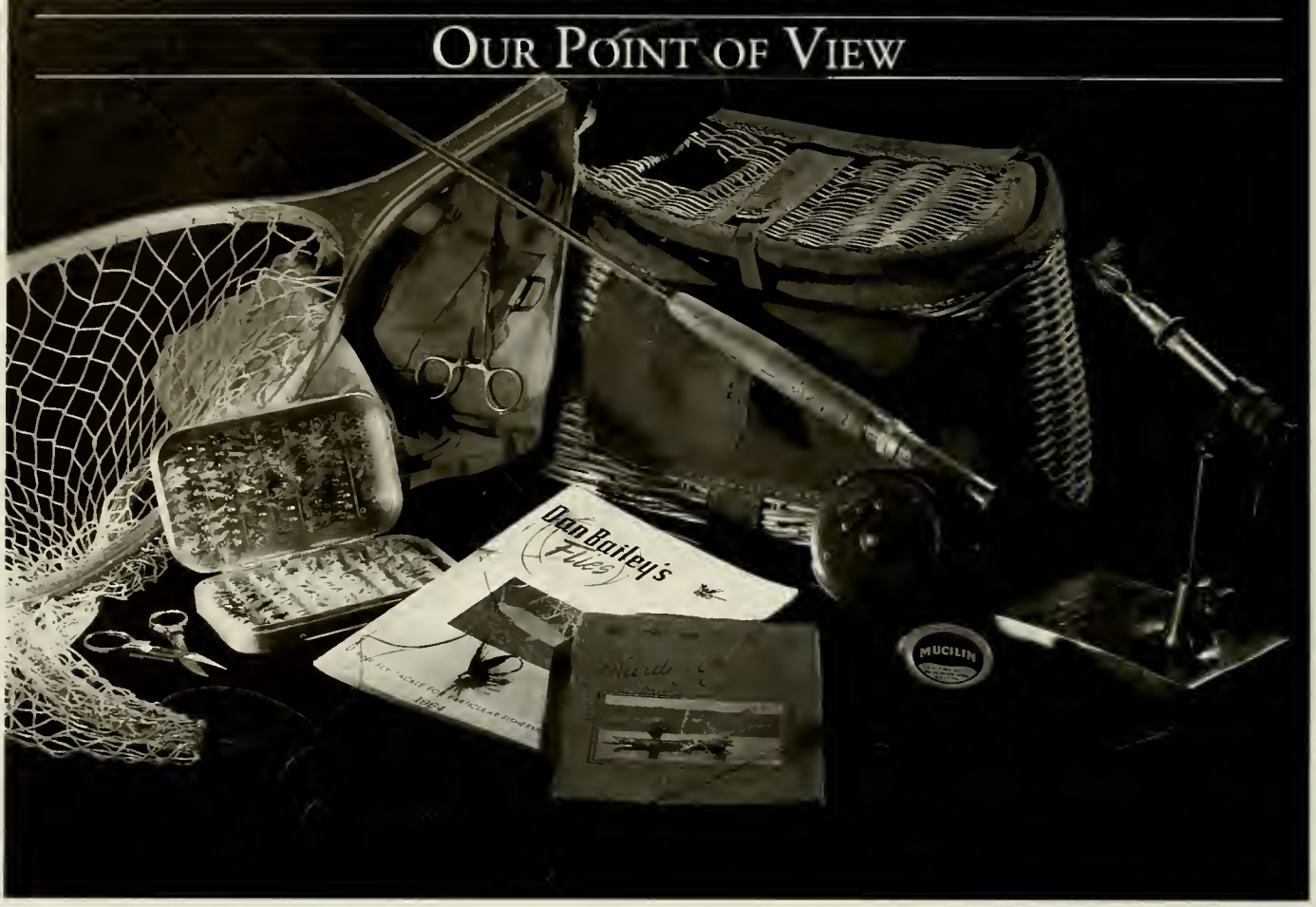
May/June 1993 $2.00

MONTANA OUTDOORS



Our Point of View



DOUG O'LOONEY

Every few years the department creates a film that captures some part of Montana—its lands, its wildlife, its waters, its people:

The Full Circle *The Last Parable*
The Bridge *Spirits on the Wing*

Now: *Three Men—Three Rivers*

The concept was simple—to weave the mystery and beauty of Montana's wild rivers with the people who knew them best.

Rivers are alive, always changing.

To know a river, one must look below its surface, beyond its banks...stand against its current, drink from its waters.

For three men, the life of a river and their own lives became so entwined it is hard for me to think of one without thinking of the other.

Whether I am perched on a bluff overlooking the wide reaches of the Madison River, stalking wild trout on the Big Hole long after the salmonflies and rafts have taken flight, or lost in the tranquility of the Yellowstone River beneath the towering peaks of the Absaroka Range, I am reminded of anglers and conservationists Bud Lilly, George Grant, and Dan Bailey.

Three Men—Three Rivers

Governor Marc Racicot, in his State of the State address, said:

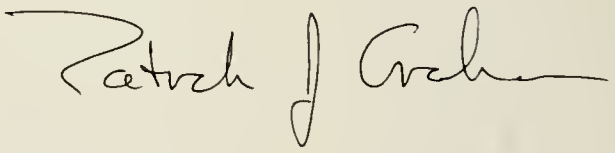
> "I want a Montana that feels like, and looks like, and smells like the place I grew up in and will always be home."

Our roots are as deep as our memories are strong. It's that strength we use to build better lives for ourselves, for our children.

When I think about building that future, I am struck by the words of author and angler Charles Waterman:

> "A conservationist doesn't build anything you see. Generally, they are involved in saving something that we want."

Three Men—Three Rivers.



Patrick J. Graham
Director
Montana Department of Fish, Wildlife & Parks

KRISTI DUBOIS

For a medley of Montana wildflowers, turn to page 27.

State of Montana
Marc Racicot/Governor

Fish, Wildlife & Parks Commission
Stan Meyer/Chairman
Jim Rector/Vice Chairman
Elaine Allestad
Charles Decker
David Simpson

Department of Fish, Wildlife & Parks
Patrick Graham/Director
Al Elser/Deputy Director for Field Operations
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COVERS

Covers—"A bird that looks like winter holds spring in its scarlet eye." So begins this May/June issue with Ridgeland, Wisconsin, photographer **Bill Kinney's** inspiring loon image, and so ends Deborah Richie's extraordinary article, "Loon Music," that leads off this issue. If you hear a long note—rising, falling, ringing, and lingering—you will have a sure signal that spring has closed in on western Montana. Spring and wildflowers go together like sun and summer. Among the most noteworthy of Montana's "Blooming Medley" is beargrass, played with Glacier National Park as accompaniment, by Jackson, Wyoming, photographers **Ed** and **Bobbie Taylor.**

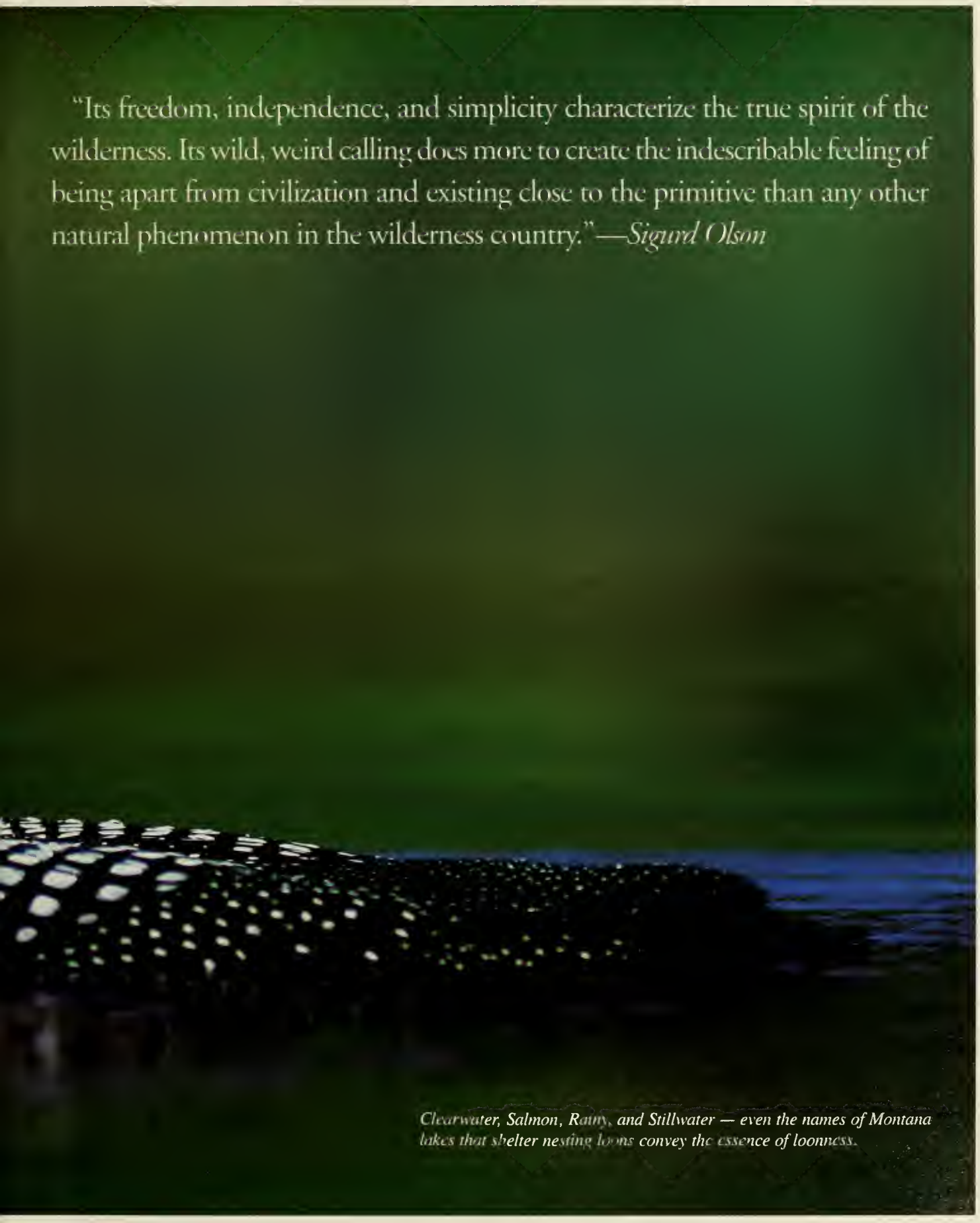
WATCHABLE WILDLIFE

LOON MUSIC

by DEBORAH RICHIE

BILL KINNEY

"Its freedom, independence, and simplicity characterize the true spirit of the wilderness. Its wild, weird calling does more to create the indescribable feeling of being apart from civilization and existing close to the primitive than any other natural phenomenon in the wilderness country."—*Sigurd Olson*



Clearwater, Salmon, Rainy, and Stillwater — even the names of Montana lakes that shelter nesting loons convey the essence of loonness.

Snowflakes dance across the silky, black back of the floating bird. Flecked feathers and lake ripples merge into one dazzling surface. The loon is invisible.

It's April. The ice melted a few days ago, signaling the return of loons to western Montana. The call reveals the bird's presence. One long note rises, falls, rings, and lingers.

Loon calls flow through our veins, seeping into bones and sinew. For a moment, we become the wild flute music that curls into every recess of the lake. The echo pulses within us long after the stillness returns.

My brother learned to converse with loons when he was 13. I remember our family clustered by the lake's edge as the night chorus started. David would listen for awhile with his hands cupped together, thumbs forming a mouthpiece. Then, he would join in, cheeks puffing, fluttering the fingers of one hand to change tones from a wail to a tremolo to a freeform yodel. In late summer, when loons converged in restless groups, he played in a symphony.

Years later, I have learned that loons call in four ways, each carrying a meaning that humans have come to understand at some level.

First, there's the soft, single-note hoot. This is the reassuring voice of parent to chick, or mate to mate.

The wail is an ascending then slowly descending howl. To do this, the bird clamps its bill nearly shut. As the sound forces its way up and out the windpipe, the throat swells. A questioning "who are you" swirls across the lake to another loon. When the wail simply ascends, other loons recognize the warning of an approaching bald eagle. Eagles can swoop down on chicks, too young to dive to safety.

The tremolo sounds like musical laughter, but actually signals alarm. When a boat steers too close to a nest, the owner loon will snap its bill open and closed, transforming air into wavy notes that writer John McPhee described, "If he were human, it would be the laugh of the deeply insane."

It is the yodel of males challenging other males that has inspired true fear in people. Words like "maniacal," "blood-curdling," "thrilling," and "horrible" all have been used over the past century to describe the indescribable.

Perhaps the origin of this fear is the same that inspired early settlers to hack clearings in the forests. They beat back the tangle of dark, wild things with puritanical zeal. Wolves howling, coyotes yapping, loons laughing—all seemed to mock civilization.

Native Americans living in concert with wilderness responded differently to loons. The Chippewa tribe's term, "loon-hearted," means "brave." The Ojibway word for loon, "mang," conveys pride and beauty.

Montanans who share loon country west of the divide welcome the return of the primeval birds to lakes that drape like jeweled necklaces upon the glaciated landscape. Loon calls coax the green stems to burst through thawing soils. A bird that looks like winter holds spring in its scarlet eye.

BILL KINNEY

The first three weeks of a chick's life are the most dangerous. Their downy feathers don't keep them warm for very long or allow them to dive to safety if a bald eagle flies over. The best place for protection, warmth, and rest is nestled in the soft feathers of a parent's back.

JACK STIRLING

Two days before a chick emerges, a faint peeping starts from inside the warm shell. Chicks emerge a day apart. Soon afterward, the parents pick up the eggshells with their bills and drop them into the water. They may be trying to protect the nest site from predators.

JACK STIRLING

For one uneasy month in May, the heavy-boned divers come ashore. There, they choose a nest site close to water and start to build, pulling up vegetation from underwater to build a mound. A saucer-shaped depression in the center will cradle two eggs. Parents share the task of enduring wind, insects, and hot sun to keep the eggs at a constant temperature. People are the greatest threat. Any approach closer than 150 yards can flush the parent from the nest, exposing the eggs to watchful ravens and chilling weather. Be careful near marshy inlets or islands, two favorite nest choices. Always use a long lens to photograph the easily disturbed birds.

A loon lands belly-first on the lake, unlike geese and ducks that ski in on webbed feet. Loon feet are set far back on their bodies to better propel them underwater in their search for fish, which they spear with a daggerlike bill. When landing, their feet naturally extend straight behind them. Cruising in low to the lake, the gradual descent ends in a dramatic show of speed, spray, and waves.

BILL KINNEY

Three's a crowd in springtime. This mated pair approaches an outsider with a non-verbal warning: "time for you to leave." (Note that males and females share identical plumage.) Loons become extremely territorial during the nesting season. Later in the summer, they will seek each other out and often swim in groups of five or more.

JACK STIRLING

JACK STIRLING

A loon ends the day by stretching wing muscles and realigning feathers, followed by preening.

BILL KINNEY

For six to eight weeks, feeding chicks is an all-consuming task. The youngsters may eat 30% of their body weight every day. Researcher Lynn Kelly has observed parents feeding a chick up to 15 food items in five-minute intervals, until the downy bird couldn't eat another bite. A couple of hours later, the parents are back to work. Young chicks start with insect larvae and nutritious leeches. As they get older, individual food items become larger, until they are gulping fish like this one.

LYNN KELLY: A MARATHON OF DEDICATION

DEBORAH RICHIE

Last September, Lynn Kelly said her annual farewells to loons she has come to know by call, nest, and territory. Seeley Lake lay motionless, suspended between seasons. Yellow alder leaves drooped over the water's edge. Larch needles alternated between green and gold.

"It's a lonely feeling to stand by a lake like this and know the loons have left," she said. By October, the approximately 160 loons inhabiting glacial, tree-lined lakes in western Montana would be gone, flying at steady speeds of 75 miles per hour to unknown winter havens. That day, we spotted a few gray-backed juveniles and one adult, its black face streaked with silver. Like the leaves, loons shift colors each fall.

This spring, a pair takes shifts incubating eggs on a discreet nest surrounded by sedges and cattails. More common loons *(Gavia immer)* breed in Montana than in any other state west of the Mississippi, outside of Alaska. They seek out lakes greater than 10 acres and below 5,000 feet, with suitable nest sites away from homes and other human intrusions.

Just 150 yards away, five yellow signs in a semicircle bob in the water, carrying the message: "Loon Nesting Sanctuary. Please Stay Away."

From 1986-91, Kelly followed the trials of breeding loons in the Clearwater-Swan and Tobacco-Stillwater drainages. Her master's thesis demonstrates that the signs played a pivotal role in chick survival. Once the sign program started in 1989, most boaters proved more than willing to stay away. She witnessed the number of human disturbances drop from 32 to 13. The result? She saw more successful nests and numbers of two-chick broods. Employees of the Montana Department of Fish, Wildlife & Parks and the Lolo National Forest work with Kelly each year to set up the signs by May 1 and take them down on June 15.

For the seventh-grade science teacher from Polson, watching loons has become more than an avenue to an academic degree. Hundreds of hours glued to a spotting scope, thousands of miles driven between lakes, the storms, winds, and mosquitoes all add up to a marathon of dedication. It's a marathon she plans to continue. This May you may see her sitting by a boat ramp, searching for new nest sites. She often chooses launching points to encourage boaters to ask her questions and to take a turn at the spotting scope.

She tells them if they see one loon, there's a good chance another is nearby; be cautious. Two loons swimming indicates the boaters have scared one off the nest. That means leave at once. She is especially eager to pass on her message to bass and pike anglers, who search for fish in marshy inlets, where loons like to nest.

Kelly speaks frankly and easily about her subject. Over the years, she has come to know not just the loons, but human residents of the lakes, who speak of her with affection. To them, she's the "loon lady."

Loons have become a passion intertwined with pristine lakes and wild calls. Lynn remembers the moment she crossed the line from interest to fascination.

"It was sunset on a lake in the Swan Valley. I had just fought my way through thick brush to the lakeside. I felt a bit edgy, knowing this was bear country. I called and a loon answered and swam toward me. We watched each other and then something clicked. I was hooked."

The intimate encounter with a loon on its terms strengthens her dedication to meticulous research.

"If we, as researchers, get so captivated by numbers, facts, and figures that we lose a sense of wonder, we lose balance," Lynn said. "We all need to be open to the beauty of another species living in its natural realm."

LOON VOLUNTEERS WANTED

If you'd like to adopt a loon nesting lake in May and June, the Montana Loon Society is looking for volunteers to watch nests and talk to boaters. Contact Lynn Kelly, 6525 Rocky Point Road; Polson, MT 59860.

Each July, volunteers spend one day counting adults and chicks on every known nesting lake. If you'd like to participate, write Don Skaar, 411 West Bush; Libby, MT 59923. ■

Prairie Rainbows

by Pat Clancey

There are no salmonfly or caddis hatches in the Missouri River below Fort Peck Dam, but happy trout anglers aren't complaining.

Hot, arid, mountainless northeastern Montana. Where those warm, muddy rivers meander. Where those strange prehistoric sturgeon and paddlefish live. Where those sauger, catfish, and walleyes fill the stringers. Where those strange minnows, suckers, and "shiners" confound identification. Where those rainbow trout in the Missouri River at Fort Peck grow to trophy size.... What?? Rainbow trout!? In the Missouri River at Fort Peck!? What??

Yes, there most certainly are rainbow trout in a short stretch of the Missouri River immediately below Fort Peck Dam (see map). And what beauties they are. Local residents and a few others across Montana have been catching them for several years now. Fish weighing more than four pounds are not uncommon, and fish much larger have been caught and released by anglers.

The first rainbows arrived between 1950 and 1963, when almost 50,000 seven- to 10-inch fish were planted in the tailrace—the first few miles of cold, fast water below the dam. In 1980 and 1981, another 38,000 three-inch rainbows were planted in the "dredge cuts" (ponds connected to the river that were formed during excavation of soil for dam construction). At least some of these fish survived and began spawning, eventually producing a self-sustaining population. Working in their favor was the cold water released from the depths of Fort Peck Reservoir, and the high productivity of that water.

In a turbid, warm-water system like the Missouri River in northeastern Montana, construction of a large dam has major biological consequences. Dramatic changes in water temperature, clarity, and flow patterns below the dam may adversely affect native fish and wildlife populations, but they can also create a hospitable environment for new species. In the case of Fort Peck, the dam provided the potential for an outstanding cold-water trout fishery.

Before 1983, however, when the U.S. Army Corps of Engineers and the Montana Department of Fish, Wildlife & Parks (FW&P) began a joint project to improve the fishery below Fort Peck Dam, several factors were working against rainbow trout survival. First, water levels below the dam fluctuated up to three feet each day due to hydropower operations, forcing spawning adults and young-of-the-year to expend considerable energy moving within the channel to find suitable resting areas and cover. During periods of low water, they were more vulnerable to predation and ran the risk of becoming stranded; during high water, they were exposed to strong water currents.

MIKE ADERHOLD

Before 1983, when the U.S. Army Corps of Engineers and FW&P began a project to improve the trout fishery in the Missouri River below Fort Peck Dam, several problems kept rainbow spawning from reaching its full potential. Today this section of river provides unique trout fishing opportunities for residents and visitors to northeastern Montana.

MIKE ADERHOLD

Next, several problems kept spawning from reaching its full potential. Low water releases in spring sometimes dewatered the spawning grounds, causing eggs to dry out. Trout had a limited amount of gravel in which to bury their eggs, leading to "superimposition" of nests, or redds. This happens when the eggs of early-spawning fish are dug up or disturbed by later spawning fish because all suitable spawning gravel has been used. In addition, erosive soils that washed into spawning areas after heavy rains or snowmelt often suffocated the incubating eggs and made it harder for spawners to excavate the redds.

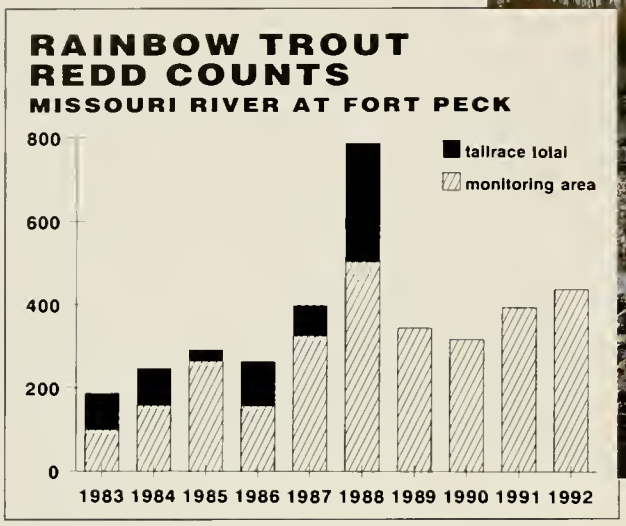
Finally, anglers tended to center their efforts on two primary spawning areas where fish were concentrated. This held the potential for overharvest, since the limit was 10 per day, and exposed the redds to inadvertent damage from wading fishermen. Studies at Fort Peck and other trout waters in the state have shown walking on redds to be detrimental to egg survival.

IN 1983, WHEN THE JOINT PROJECT BEGAN, biologists counted the redds throughout the river below the dam where gravel bars were located. In that first year, they counted 187 redds, primarily in two areas within the same side channel. During autumn of 1985 and 1987, washed gravel was purchased and placed in this side channel to expand the available spawning area and relieve the superimposition of redds that had been adversely affecting spawning success. The rainbows responded by using the new gravel, and in the spring of 1988, biologists counted 788 redds throughout the tailrace, 504 of them in the side channel where the gravel had been placed.

In addition to gravel, branches and limbs from trees trimmed in the Fort Peck area have been placed in the side channel to provide cover for spawning adults and the young rainbows that hatch each spring. These structures provide shade, a break from water currents, and shelter from predators. Much of the success

Addition of new gravel to the spawning channel at right (shown here with lowered flow) led to significant improvement in rainbow spawning success.

JIM LIEBELT



of the joint program has been due to the cooperation of local landowners who have granted access to the river channel to accomplish these habitat improvements.

Another step taken to enhance the fishery is improved water level management. At FW&P's request, the Corps of Engineers now regulates the flow through the side channel to provide more favorable flow conditions during the spawning and rearing seasons. This reduces the dewatering and daily water level fluctuations that lowered spawning success and required excessive energy expenditures by adult and young rainbows. The Corps also built a sediment check dam in a major gully that has significantly reduced the amount of sediment carried into the side channel.

SINCE 1988, WHEN THE PROJECT WAS COMPLETED, redds have been counted each spring in the two primary spawning areas. These counts probably underestimate the actual number of redds, but they indicate a general improvement in spawning activity (see figure). Also in 1988, the Montana Fish, Wildlife & Parks Commission reduced the daily and possession limit for rainbow trout below Fort Peck Dam to two, and closed the two primary spawning areas to fishing and wading. Today, many anglers voluntarily practice catch and release fishing, especially with the larger rainbows.

There are no salmonfly or caddis hatches below Fort Peck Dam, and few mayfly swarms. Unlike the large rainbow trout of the Kootenai River, these rainbows are not known to be fish eaters. Apparently their excellent growth is due to a diet of midges and blackflies. However, cisco are abundant in the tailrace, following their 1984 introduction into Fort Peck Reservoir. It is possible that the rainbows are preying on cisco, but that has not been documented to date. Unfortunately, the year-round movements and activities of the rainbows aren't known, but available information suggests they remain in the 10 miles of river between Fort Peck Dam and the Milk River all year. Brown trout and chinook salmon have also been stocked in the tailrace, but have not established themselves like the rainbows.

With careful management, this rainbow fishery will continue to provide a unique opportunity for residents of northeastern Montana, as well as for those willing to make a longer journey to test the waters. Access is available from the public boat ramps in the Fort Peck tailrace area, or by permission of adjacent landowners. As John Holt writes in his book, "Knee Deep in Montana's Trout Streams": "Middle-of-nowhere fishing for unreal fish with nothing but nothing flowing into 360 degrees of empty, windy, dusty distance. There is freedom and wonder way out there." ■

GOVERNOR RACICOT NAMES THREE NEW COMMISSIONERS

The advent of Montana's new administration in January 1993 signaled the arrival of three new members to the Montana Fish, Wildlife & Parks Commission. Appointed by Gov. Marc Racicot as the new chairman of the commission is Stan Meyer, presently the chairman and chief executive officer of Wendt Advertising in Great Falls. After earning a degree in agricultural journalism from Iowa State University at Ames in 1956, Meyer, 57, worked for a South Dakota radio station before moving to Great Falls in 1958. He is a hunter and a fisherman and served as chairman of the board for the Montana Chapter of The Nature Conservancy for four years. He also founded and chaired the Ulm Pishkun State Park Support Committee in 1987. In addition, Meyer is on the board of the Economic Growth Council of Great Falls, is a past director of the Great Falls Area Chamber of Commerce, and served on the Great Falls City Commission for four years in the late 1970s. Meyer has assumed the chairmanship from Martinsdale rancher Errol Galt, who was elected to the Meagher County Commission last November.

Also assuming places on the commission are David W. Simpson of Hardin and Charles R. Decker of Libby.

Simpson, 46, is currently vice president of operations for Westmoreland Resources, Inc., which owns and operates the Absaloka Coal Mine in Big Horn County. A native of western Pennsylvania, Simpson earned a bachelor's degree in biology from the University of Pittsburgh and a master's degree in wildlife management from Penn State. Since joining Westmoreland in 1975 as an environmental affairs manager, Simpson has served on the state's Renewable Energy Advisory Committee for the Department of Natural Resources and Conservation and, most recently, as chairman of the Board of Health and Environmental Sciences. An avid hunter and fisherman for most of his life, he also is the past president of the Big Horn County Rod and Gun Club and is a past county chairman for Ducks Unlimited. Simpson will serve as the commission's southeastern Montana representative, a seat formerly held by Bill Stratton of Billings.

Stan Meyer

David W. Simpson

Charles R. Decker

Decker, owner and operator of CRD Timber and Logging Co. at Libby, is a life-long sportsman. He was one of the original founders and has served on the board of directors of the Rocky Mountain Elk Foundation for the past nine years, most recently as the board's chairman. He fills the commission's northwestern Montana seat which was vacated by outgoing commissioner Greg Barkus of Kalispell.

Elaine Allestad, a rancher from Big Timber, and Jim Rector, a Glasgow lawyer, continue as the other public representatives on the five-member commission.

Patrick Graham, director of the Department of Fish, Wildlife & Parks, praised the selection of all three new commissioners. "The three bring considerable experience and diverse backgrounds to their new roles," he said. "This should be very beneficial in representing the public's interests in the many issues faced by the commission. We are very pleased with Gov. Racicot's selections and the willingness of these Montanans to dedicate their time and energies to the commission."

Auction Boosts Sheep and Moose Programs

Montana's bighorn sheep management program received a major boost last week with the sale of the state's auctioned sheep hunting license for $205,000 at the Foundation for North American Wild Sheep's (FNAWS) annual convention in Reno.

Ninety percent of the proceeds will be used for habitat improvement, trapping and transplant operations, and other activities related to sheep management in Montana. Ten percent of the proceeds from the auction are withheld by FNAWS to support sheep management efforts throughout North America. The Department of Fish, Wildlife & Parks has used the proceeds from previous auctions to establish sheep herds in five new areas of the state, to conduct habitat improvement projects in cooperation with the U.S. Forest Service, to purchase 65 acres of bighorn sheep winter range near Kootenai Falls, and to conduct research in the Highland Mountains, the Taylor-Hilgard Mountains of southwestern Montana, and the Ten Lakes area near Eureka.

FNAWS annually funds a wide variety of projects, including biological and research studies on all four species of North American wild sheep, acquisition of critical sheep habitat, transplants of sheep to historical sheep range, habitat enhancement, and efforts to safeguard the environment, reduce poaching, and foster hunters' rights. A local chapter of the foundation was formed in Montana last year. The chapter raised more than $19,000 for bighorn sheep in Montana at its first convention in Bozeman last December.

Also at the FNAWS convention, $13,000 was bid for the opportunity to hunt a Shiras moose in Montana next fall. Just as the funds from the auctioned sheep license are directed toward sheep management, 90% of this contribution will benefit moose management in our state.

Reflecting on the importance of these monies to Montana's bighorn sheep management efforts, Glenn Erickson, chief of the Management Bureau for FW&P's Wildlife Division, said, "The donations of these individuals and the efforts of the foundation have provided the funding necessary to maintain and, where appropriate, increase bighorn populations in this state and we sincerely appreciate their generosity."

Since the annual sheep license auction began in 1986, over $710,000 has been raised for the benefit of bighorn sheep in Montana. Auctioned moose licenses have raised over $50,000 since the license was first auctioned in 1988.

Start the Boating Season Right

As the snow melts away and rains and spring runoff fill our lakes and rivers, many Montanans are anxious to make their first boating trip of the year. Follow these tips to start the boating season off right.

ILLUSTRATION BY DIANA HAKER

- If you own a sailboat 12 feet in length or longer or a motorboat, purchase a 1993 boat decal at your County Treasurer's office.
- Inspect your life jackets. All snaps, buckles, and zippers should work. If a jacket has holes or the material is rotten, replace the jacket. Montana law states there must be one life jacket available for each person on board. Youths under 12 years of age must wear a life jacket.
- Check the fire extinguishers on board and have them recharged if needed. If you have a dry chemical extinguisher, turn it upside down and shake it. This will loosen the powder inside that has compacted in the bottom of the extinguisher.
- Check the boat's running lights and ventilation system to ensure they are in good working order.
- Store extra equipment on board such as a tool kit, first aid kit, extra oars, flashlight, and rope.
- Have a designated driver for your boat. It's dangerous and illegal to operate a boat when intoxicated. Alcohol affects a person's balance, vision, and judgment and increases the chance of hypothermia.
- Boat noise is becoming a more frequent complaint. You can control the noise your boat emits. Boat owners should maintain an effective muffler, approach and leave shore slowly, operate the boat far from the shoreline whenever possible, and avoid running the boat in early morning and late evening. Be courteous to others who recreate on or live near the water.—*Liz Lodman, coordinator, Recreational Vehicle Safety Program, Conservation Education Division, Helena*

Leave Young Wildlife in the Wild

It's springtime again in Montana—a time of fragrant wildflowers, soft rains, and the birth of young wildlife. The attraction of young "orphaned" wildlife is irresistible, and many well-meaning people can't resist the temptation to "help." It may seem like the humane thing to do, but all too often it's the cruelest, most inhumane action you could take.

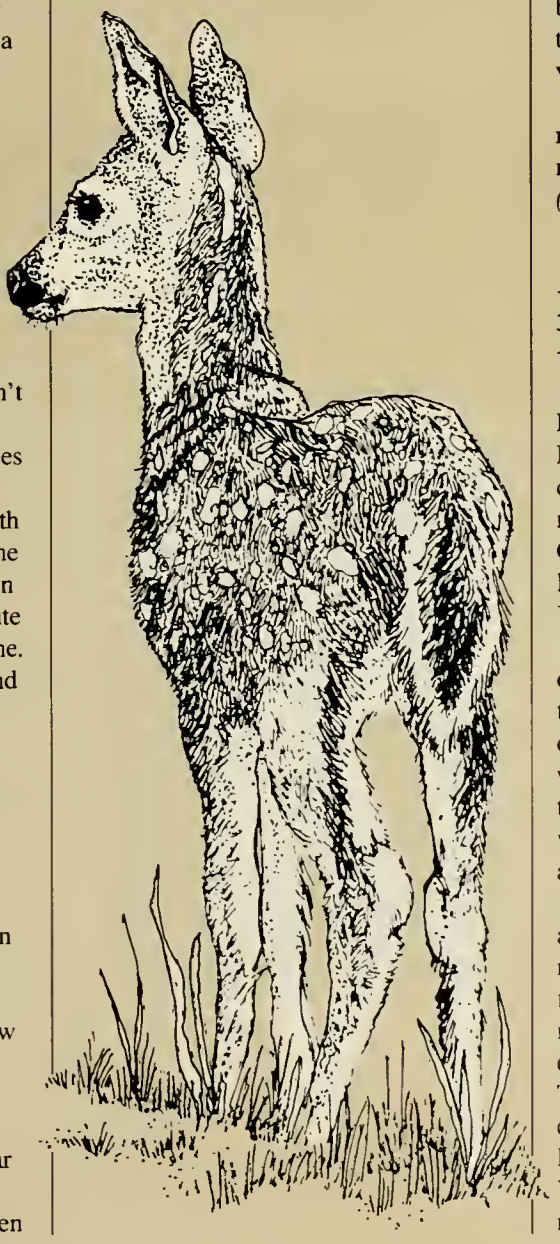
Born in May and June, many young wild animals appear to be lost, abandoned, or helpless as they tremble in their hiding places. Young wildlife are not helpless and are very rarely abandoned. In most cases, the mother probably is gone only temporarily or, as with many wild animals, she instinctively remains a short distance away to avoid attracting attention to her young. Other wildlife parents will go to great lengths to keep predators away from their young. A common bird named for its call, the killdeer, will mimic injury and flutter about to draw intruders away from its nest. Under these circumstances the discovery of the killdeer nest, with its three soft, fuzzy babes, may lead someone to believe the young ones won't make it with a crippled parent. Taking young wildlife under these circumstances is akin to kidnapping.

Often people take young wildlife with the hope of acquiring a unique pet. Some have actually dug up a fox or coyote den to get the pups. The pups make nice, cute pets until they take a bite out of someone. It takes an incredible amount of time and attention to try to domesticate a wild animal. And most wild animals never become completely tame.

What happens next is a sad story. Wild animals, whether taken to "help" them or for pets, often end up as the responsibility of the Montana Department of Fish, Wildlife & Parks. As soon as it is apparent to the animal's human foster parents that caring for young wildlife is extremely difficult, they show up at FW&P offices asking, "Will you take it?"

Each spring, FW&P cares for numerous deer and antelope fawns, bear cubs, moose and elk calves, fox and coyote pups, raccoons, badgers, and even porcupines. Many of these die—it's very difficult to substitute for natural foods, and scours brought on by imbalanced body chemistry takes its toll.

Those that do make it are destined for a life behind the bars of a cage. Attempts are made to return most of the orphans to the wild, but it doesn't always work, and some, once domesticated, can never be returned. Zoos are the likely answer for semi-domesticated wildlife, but most already have an adequate number of the common western species and there just aren't enough places for them. Finally, with all the options exhausted, the animals have to be put to sleep, just like unwanted pets.



As harsh as the consequences may be, the truth of the matter is that it didn't have to be that way—if the wildlife babes had been left alone in the first place.

What should you do if you discover an apparently abandoned wild animal? In most cases, leave it alone. Just touching or picking it up may cause rejection by the mother because of human scent. Birds, however, cannot smell, and fledglings may be carefully returned to their nest. FW&P should be notified of young wildlife that have been orphaned because the mother was accidentally killed.

Remember that it is illegal to possess or remove from the wild any game animal, game bird, songbird, furbearer, or bird of prey without official authorization, and fines may be levied for such violations.

Springtime brings with it the breath of new life—hopefully it won't be kidnapped.—*Bill Thomas, Region Two (Missoula) information officer*

Department Releases New Film

The Department of Fish, Wildlife & Parks has released its new film, "Three Men—Three Rivers." The 30-minute documentary explores the lives of three men and their influence on three rivers: George Grant, the Big Hole River; Bud Lilly, the Madison; and Dan Bailey, the Yellowstone.

The film probes people's perceptions of three of the finest wild trout rivers in the world. To fully appreciate the opportunities these three rivers and their wild trout offer, one must also understand the commitment of these three men and what their legacy means to everyone who appreciates the value of wild rivers.

The film concentrates on the unique and powerful relationship between the rivers and the men. For the Big Hole, the film focuses on the timeless natural rhythms of the river and the curious and captivating story of the salmonfly hatch. Then that energetic piece of film is contrasted with a lyrical sequence on the Madison and its wild trout. The Yellowstone is the longest free-flowing river in the continental United States; the

film shows how the river changes along its course—as well as exhibiting some magnificent scenery along the way.

Each of the three men made sure that his river was a better wild trout fishery than before he came. George Grant began fishing the Big Hole in 1925. Over the years, he has raised $50,000 for river conservation through donation of his hand-tied flies. Bud Lilly has been a guide on the Madison for 35 years. He says, "We harvest other things—satisfaction, pleasure, and peace—from streams whether we catch fish or not." Charles Waterman, who wrote "Mist on the River: Remembrances of Dan Bailey," tells Mr. Bailey's moving story. Simply put, Dan Bailey came to Montana because he loved to fish. He devoted much of his life to preserving the Yellowstone's wild character.

Loan films and/or VHS copies of the production are available from the Film Center, 930 Custer Avenue West; Helena, MT 59620 (406/444-2733), or from regional department offices. VHS and 16mm copies are for sale from the Montana Parks and Wildlife Interpretive Association, P.O. Box 9211; Helena, MT 59604. Revenue generated from sale of this production will be invested in the aquatic education program in Montana schools.

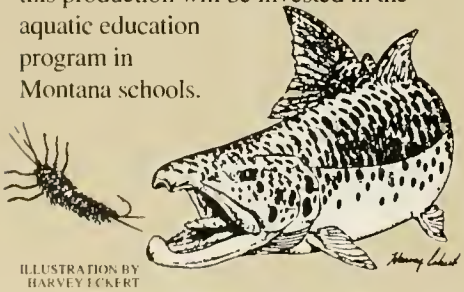


ILLUSTRATION BY HARVEY ECKERT

MONTANA STATE PARKS CALENDAR

MAY

Motorboat Testing at Lake Elmo State Park

Opportunity for motorboat owners to test engines for the upcoming summer season. Testing will be done the first four weekends in May. Call 252-4654 for details.

JUNE

5—Family Fun Day at Lake Elmo State Park

Free entry for all. Enjoy lifeguard-supervised swimming area. Rent canoes, kayaks, inner tubes, and paddleboats, or take windsurfing lessons.

25-27—Lewis and Clark Encampment at Giant Springs State Park

A variety of historical activities for all ages. Plays, portage run, buffalo roast, old-time crafts, and more.

27—Roe River Day at Giant Springs State Park

A special day of fun activities designed for children.

Archaeological Dig at Ulm Pishkun State Park

Exact date unknown, please call 454-3441 for details.

Star Parties (Vision 2000) at Giant Springs State Park

Exact dates unknown, please call 454-3441 for details.

JULY

4—Fort Owen Day at Fort Owen State Park

Ceremony and celebration to commemorate Montana's first permanent white settlement in 1841. A living history with skits, flag ceremony, and mint julep stand.

10—Kids' Day at Spring Meadow State Park

A special day of fun for children. Games, fishing clinic, entertainment, food, prizes, and more!

17—Beaverhead Road Runners Fun Run/Gold Rush at Bannack State Park

Participants may choose the 1.4 or 5.2 mile run. Registration begins at 8 a.m.

17-18—Bannack Days at Bannack State Park

History comes to life as characters from the past stroll the streets of Bannack amid medicine shows, shoot-outs, weavers, candle makers, and old-time musicians. Sample the kettle-cooked popcorn or eat a hearty meal served in the Old Meade Hotel.

25—Seniors' Day at Spring Meadow State Park

A special day of fun activities designed for our senior citizens. Music, entertainment, food, and prizes.

31—Beach Olympics at Lake Elmo State Park

Variety of fun and crazy sports events held on the beach of Lake Elmo. Activities include the keg toss, canoe race, water gun sharpshooters' contest, and paddleboat races.

Garden Triathlon at Frenchtown Pond State Park

Swim, bicycle, and run beginning and ending at the park. Exact date unknown, please call 542-5500 for details.

AUGUST

7—Heritage Day at Canyon Ferry State Park

A special day set aside to remember and enjoy our heritage. Numerous old-time crafts including spinning, butter churning, quilting, and others.

20-22—Dinner Theater in the Park at Makoshika State Park

"Pitchfork" fondue dinner and a short play in the park. A real treat!

SEPTEMBER

6-10—Native American Awareness Week at Chief Plenty Coups State Park

Various activities for all ages focusing on Native American culture, history, and dress.

MAKOSHIKA

The Best of the Badlands

story and photos by MIKE SULLIVAN

Serene, but hauntingly beautiful. Austere, but awesome. Makoshika State Park is proof that badlands can offer some of Montana's most breathtaking scenery. At 8,123 acres, Makoshika is Montana's largest state park. Just off I-94 near Glendive, Montana, a visitor truly experiences the wide-open skies that make the phrase "Big Sky Country" ring true.

Makoshika is a Sioux phrase, a variant spelling of "ma-ko shik-ka," meaning "bad lands" or "bad earth." Some people write off Makoshika because of its inaccessibility; but to others, its rugged, fragile beauty and diversity of resources are a powerful drawing card.

When oceans first began to recede about 80 million years ago in the area of what now is Makoshika State Park, the lagoon environment supported a wealth of life. During the Hell Creek Era, the climate was tropical, much like the broad coastal plains of the southeastern United States.

Geologists call the phenomenon that contributed to Makoshika's wild terrain an anticline. Pressure exerted under the surface caused this "wrinkle" in the crust of the earth. Sediment laid down by river and water forces during the Hell Creek Era rose above the area in and around the park, thus allowing a visitor the opportunity to see exposed topography 65 million to 85 million years old.

The Hell Creek Era also marked the last great age for the dinosaur, Montana's earliest vertebrate mammal resident. More than 65 million years ago, the fierce *Tyrannosaurus rex*, triceratops, hadrosaur, dromaeosaurus, turtle, and crocodile roamed these badlands. Through fossilization, they have been preserved in the sediments that make up the Hell Creek formation within Makoshika.

Erosion is the main reason for the surreal sandstone formations common at Makoshika. Spring rainstorms sometimes drop as much as two inches of rain in an hour. Temperatures that range from 110°F in the summer to minus 40°F in the winter sculpt the landscape and provide for the diverse vegetation and wildlife.

Today, copses of ponderosa pine and Rocky

Mountain juniper are abundant, as well as over 150 species of wildflowers. Visitors often see mule deer, coyotes, bobcats, foxes, and rabbits. Migrating birds use the elevated wooded areas for summer nesting. Visitors commonly spot mountain bluebirds, goldfinches, kestrels, doves, and meadowlarks.

Every spring, turkey vultures migrate to Makoshika; with their six-foot wingspan, they catch the thermals and soar overhead looking for carrion. Annually, the Friends of Makoshika sponsor Buzzard Day to welcome back the third largest bird in North America and to note spring's arrival in eastern Montana. The Friends of Makoshika will also host a barbecue and play on August 20-22. The park's pinnacles, cap rocks, and knifelike ridges provide natural scenic backdrops for the outdoor performance.

The park's facilities include a campground, a group-use picnic

area, 11 other picnic areas, two developed hiking trails (one a self-guided nature trail), an outdoor amphitheater with seating for 100 people, archery and rifle ranges, and 9.3 miles of road, six miles with an all-weather surface to provide access to many incredible prairie vistas.

A new Visitor Center at the entrance of the park is scheduled for completion by summer of 1994. This 4,000-square-foot building will house a triceratops found in the park (see sidebar) as well as interpretation of other prehistoric fossils, a history of early man and his descendants, and exhibits of flora and fauna. This addition will give visitors to eastern Montana an awareness of the subtle and inspiring beauty of the badlands area. It will enable guests to learn about some of the diverse and unique attributes that make this park and Montana's state park system truly a great escape.

The Makoshika TRICERATOPS

It was August 1990 and field season for the Milwaukee Public Museum. Personnel were conducting a surface study to determine why dinosaurs had died in the Hell Creek Formation near Makoshika State Park.

What they discovered will be an important feature of the new Visitor Center. Irv Ladish of Milwaukee, one of the museum's volunteers, was taking a break. He nearly sat on what looked like a triceratops brow tine. He immediately called Diane Gabriel, museum paleontologist, who determined that what Ladish had seen very possibly was the horn of a triceratops. After flagging the spot, the crew finished the day's surface study project.

The next day they began digging, and soon uncovered the eye socket and intact jawbone of a juvenile triceratops. The skull measured five feet from beak to frill (the "frill" is the shield or ring behind the horns and around the neck that identifies the triceratops). Because the season was winding down, the site was covered up and plans were made to continue excavation the next season.

Three crews of eight to 15 volunteers returned in July 1991. After volunteers worked 20 days and moved over 400 yards of soil, the skull and body parts were ready for removal. A trailer donated by Rod Green of Glendive carted the skull and body parts to the Museum of the Rockies where Karen Masta began their preparation.

The triceratops discovered in Makoshika in 1990 will be an important feature of the park's new Visitor Center, scheduled for completion by summer of 1994.

Wildlife Doc

by JOHN FRALEY

BILL THOMAS

SHE'S BEEN CALLED THE FLORENCE NIGHTINGALE of wildlife rehabilitation. Working as a volunteer for the Department of Fish, Wildlife & Parks, Beth Sorensen cares for more than 50 orphaned or injured animals each year at her facility east of Kalispell. "I don't keep wildlife permanently," said Sorensen. "Everything I do at my place is aimed at returning wild animals to their natural habitat."

Her success rate has been excellent. Sorensen has released into the wild more than half of the birds of prey and other animals brought to her over the past 10 years. She feels particularly proud of the 30 bald and golden eagles she's rehabilitated. "People have to understand that you can't keep wildlife as pets; it just doesn't work," she said. "We don't name these animals, and our kids don't go out and pet them."

Wildlife rehabilitators must obtain a fistful of permits to operate. Sorensen is a federally licensed raptor rehabilitator; she holds a special purpose rehab permit, an exhibitor's permit, an education permit, and a federal migratory waterfowl rehab permit. These permits are administered by the U.S. Fish and Wildlife Service's Denver office. From FW&P she holds a letter of authorization and a game bird rehab license. In combination, these permits al-

Great horned owls (below) and bald eagles (opposite) are among the many raptors Beth Sorensen has cared for at her facility east of Kalispell.

low her to rehabilitate raptors and other birds and to use certain birds for school programs.

The permits allow her to keep raptors for up to 180 days. After that, she either has to release the bird into the wild, call it unreleasable, or ask for an extension. She has sent several unreleasable eagles to zoos.

In addition to tight regulation, wildlife rehabilitation may not be as romantic as it appears, according to Sorensen. "I've been bitten, scratched, gored, and kicked," she said. "One flightless great horned owl I've had for three years has to be the meanest animal I've ever handled. He knows where my protective glove ends and seems to take

JOHN FRALEY

JOHN FRALEY

delight in nailing me. Once, he drove two talons through the top of my hand and out through my palm. That kind of thing takes some getting used to. But because of the lesson he teaches, I still take the owl to schools. He lost an eye to a BB gun. It's not a pretty sight, but it makes the kids think."

HOW DID SHE DEVELOP THE KIND OF TOUGHNESS needed to work with unpredictable wildlife like birds of prey? "I've been kicked by a Clydesdale and injured in car accidents," she said. "I've broken two dozen bones and had my back and neck fused. I've always loved horses and farm animals, and I accepted the fact that you can get injured any time," she said. "I believe animals must be treated with a combination of respect, firmness, and understanding. I learned that from my grandfathers."

She learned to appreciate wildlife through her father. "I started hunting as a child," she said. "I hunted birds first, with my dad. I was an only child—I tagged after him and learned to shoot. Later I learned to appreciate big game hunting."

Uniquely qualified to care for wildlife, Sorensen was graduated from the University of Washington MEDEX program. She works as a physician's assistant in Kalispell with her husband, Mark, who is a pediatrician.

Juggling her medical and wildlife careers comes naturally to her; she sees human patients at the office and wildlife patients at home. In 1992, she handled five bald eagles, two golden eagles, seven great horned owls, four saw-whet owls, two ospreys, two red-tailed hawks, four kestrels, one long-eared owl, a loon, a great blue heron, and dozens of songbirds.

AT HER FACILITY, SORENSEN MIMICS NATURAL FEEDING CONDITIONS as much as possible. One osprey learned to prey on live fish in a kid's plastic swimming pool. "You can't feed these animals Cheerios and expect them to be successful in the wild," she said.

A bald eagle found in Glacier National Park was showing symptoms of lead poisoning. Sorensen began caring for the eagle in the spring and carefully replaced all 12 damaged tail feathers. She cut each feather to the correct length, and joined the shafts with pegs and epoxy. Later, she attempted to release the eagle in the park, but rangers recovered the bird when it was unable to readjust to the wild. The eagle returned to Sorensen's care but later died.

Other release attempts were more successful. In late September, she transported a bald eagle and a golden eagle to the Lake Koocanusa area. She began taking care of the birds earlier in the year. Wardens found the young-of-the-year golden eagle on the ground; the 2-year-old bald eagle had been shot in the wing.

The bald eagle burst from its holding pen as Sorensen opened the door, then soared above a small canyon. "I have a hard time describing how I feel when I watch an eagle return to the wild," she said. "It's like Fourth of July fireworks and Christmas rolled into one."

When she attempted to release the golden eagle, Sorensen was baffled by its actions. Like the bald eagle, the golden eagle burst from the holding pen as she opened the

door. But the eagle flew only a few yards, landed in a meadow, and crouched. After nearly an hour of trying to encourage the bird to fly, Sorensen was about to recapture the bird with a large net and try a release another time. Finally, she retreated out of the bird's sight. Almost immediately, the eagle flew away. "The eagle seemed to consider me an authority figure, or the symbol of its captivity," she said. "Once I was gone, perhaps the bird felt it could be free."

One eagle she received from the Libby area had a very damaged wing; the bones were broken and twisted. After attempts to set and heal the wing failed, Sorensen amputated the eagle's wing and nursed it back to health. A research group in Colorado accepted the bird for a bald eagle banding study. The eagle's calls attracted wild birds so the researchers could band them and follow their movements.

JOHN FRALEY

Rehabilitating birds of prey, like these tiny saw-whet owls, requires a fistful of permits, specialized medical knowledge, and thorough understanding of animal diets.

She has taken care of many saw-whet owls after they collided with cars. One five-ounce adult saw-whet, blind in one eye, often hid in her hair while she watched television. She released another saw-whet this spring, after it recovered from a head injury received in a collision with a car. Both owls ate dead mice while at Sorensen's facility.

Sorensen acknowledges she sometimes becomes emotionally attached to the wildlife she cares for. She describes the feeling as a struggle between that attachment and a desire to see the animal released into the wild.

ONE OF THE ODDEST EPISODES in her wildlife rehab career involved a coot emergency. Several years ago, wardens responded to calls from Flathead Lake residents and chipped from the ice 73 coots that had become trapped when a bay froze suddenly. The wardens couldn't release the weak, ice-laden birds, so they brought them to Sorensen.

"I thawed them out in the bathtub," she said. "They took residence in our barn, and I fed them trout food pellets until the ice melted enough on our pond to move them there. Most of them left in the spring, and five or six left after the summer. All but three or four of the 73 birds recovered.

"I found out a lot about coots. They're mean, they bite, and they smell terrible—like rotten fish. Some might ask why these birds were worth saving. Well, the people who lived along the lake didn't want to see them die; that's good enough."

The public strongly supports her efforts. Yet, she is cautious about the program. "I wouldn't feel comfortable doing this without four major assets. First, you must have a proper facility so that wildlife can't escape or get in. Second, an in-depth knowledge of animal diets is vital. Third, you must have medical knowledge and training to treat injured wildlife, because you're going to see every injury and sickness imaginable. And fourth, my husband, Mark, helps me with his medical knowledge and his ingenuity in designing feeding systems and holding cages. He puts up with a lot; I couldn't do this without him."

At times, she is challenged to justify the rehabilitation program. "It seems that the high school students I've presented to have deep thoughts about captive versus free animals. One of them asked me if the animals wouldn't be better off or happier dead rather than confined in a cage. I honestly don't know, and it's not my decision to make. I believe if these animals can be saved, they should be."

According to Sorensen, the best action anyone can take when seeing apparently orphaned wildlife is no action at all. In most cases, the adult animal will return. In fact, disturbing wildlife young usually increases the chance of abandonment.

"Think of the benefits these animals provide humans and their own species through education. I reached 4,500 children and adults last year through school programs and visits to my facility. When people see these animals up close, they regard them as special rather than something to shoot off a fence post. Think of the eagles that end up in zoos and the support for animals zoo visits can build."

Recently, Sorensen received a special award from the Montana Game Wardens' Association for her services to FW&P and to wildlife. She has donated thousands of hours and her own resources to make her facility a success. According to Region One Warden Captain Ed Kelly, Sorensen's efforts are invaluable. "I know how much work it takes to raise even a single animal, yet Beth somehow finds time to raise dozens of animals each year along with working a full-time job," he said. "The service she does for this department is incredible."

What really motivates Sorensen to spend thousands of hours caring for orphaned and injured wildlife? "I have to keep coming back to the bottom line of what I do: returning wildlife to the wild," she said. "Whenever I release an animal into its natural habitat, I always get this big funny grin. It makes me smile all day long." ■

Book Reviews

RIVERS OF MEMORY, by Harry Middleton, Pruett Publishing Company, 2928 Pearl Street, Boulder, CO 80301; 1993, 89 pages, hard cover, $18.95.

"A River Runs Through It" has spawned a flurry of interest in fishing in general and fly-fishing in particular. One might even go so far as to say the subject is overworked. However, don't let that stop you from picking up Harry Middleton's little book, "Rivers of Memory." The news release accompanying the review copy notes he has "the ability to impart fresh new perspective." That's true.

For a start, his trout streams aren't in Montana. They're in the South. Other of his stories are set in Baja, North Carolina's Outer Banks, and the Florida Keys.

There's real drama here, and his words are effective in setting the tone and mood. For example, his story about bluefish, "Moody Blues," opens: "There is something ineffably augural and ominous about a coastal town in winter." You'd guess correctly that this is not going to be a sunny tale. He concludes that not everything about fishing is noble and reasonable and sane. That fishing is not an escape from life, but "often a deeper immersion into it, all of it, the good and the awful, the joyous and the miserable, the comic, the embarrassing, the tragic, and the sorrowful."

Then there's the man himself. Middleton has written "The Earth is Enough," "On the Spine of Time," and "The Starlight Creek Angling Society." His work has appeared in the New York Times, *Sports Illustrated, Country Journal, Sports Afield, Fly Fisherman,* and *Reader's Digest.* He wrote "Rivers of Memory" in the "selfish hours between deep night and dawn's first blush." He wrote it from his house atop an Alabama hill, and while he was working three full-time jobs—on a county garbage truck, at a shoe factory, and stocking the shelves of a supermarket. One has to admire that kind of commitment to doing what must be closest to his heart.

Margaret Donharl's cover illustration and imaginative treatment of the letters of the alphabet that begin each chapter are of special note. Her renderings enhance Middleton's thoughtful, bittersweet prose. Writer Annie Dillard ("Pilgrim at Tinker Creek," "Teaching a Stone to Talk") called "Rivers of Memory" "one of the best around." Jim Harrison ("The Theory and Practice of Rivers") called it "a specific tonic in an overscrutinized sport." Scrutinize it for yourself; I think you'll agree that it's a keeper.—*Kay Morton Ellerhoff*

JACK O'CONNOR'S GUN BOOK, by Jack O'Connor, Wolfe Publications, 6471 Airport Dr., Prescott, AZ 86301; 208 pages, $24.95.

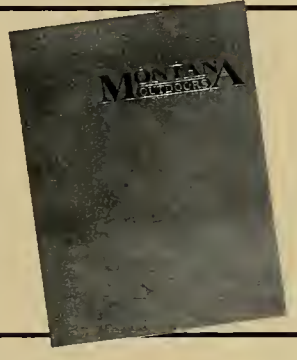
Back in the 1950s, some of the best outdoor and gun writing appeared not only in the conventional hunting and fishing magazines, but in contemporary macho tabloids such as *Argosy, Man, True, Popular Mechanics,* and *Popular Science.* It was not unusual to see the works of Townsend Whelen, Elmer Keith, and Warren Page wedged in between graphic illustrations of brawny sailors wielding K-Bar knives, rescuing scantily-clad, full-figured heroines from the jaws of great white sharks, or articles looking at the roles of men and women in ways that would not be considered exactly politically correct today.

Among those scribes who graced the pages of the "Male Media" was the late Jack O'Connor. Wolfe Publications of Prescott, Arizona (the publishers of *Rifle* and *Handloader* magazines as well as numerous books on hunting and shooting), has reprinted "Jack O'Connor's Gun Book" which originally appeared from the presses of *Popular Science* in the 1950s.

"Gun Book" is pure O'Connor in which he discusses both rifle and shotgun technique with the literary elegance that we all have come to expect. As was typical then, the ".30-06 versus everything" argument receives a thorough plowing. The book looks at fundamentals on everything from reloading ammunition and how to use various sights (iron and telescopic) to how to dress and care for game. There's even a section on woodsmanship ("Don't Get Lost") which makes this book one of those "everything you ever wanted to know" guides. By a lesser writer, "Gun Book" would probably be just another garage sale standard. O'Connor, however, transforms technical regimen and what might otherwise be remedial Boy Scout Manual fodder into highly readable and enjoyable text on shooting and outdoorsmanship.

"Gun Book" does not offer any real news to the shooting or hunting aficionado of the 1990s, although as an introduction to a new or young shooter, it is as relevant today as it was 40 years ago. Beyond that, it is an excellent collection of Jack O'Connor's biases, opinions, and elegant ruminations on a number of hunting related topics. There seems to be a dearth of outdoor/gun writers these days who have the poetic acumen and real field experience that O'Connor did. "Gun Book" harkens back to the first salvos O'Connor fired on Elmer Keith when they engaged one another both in print and in person over the finer points of hunting rifles, calibers, and the other topics around which outdoor literary warfare is waged.

But whether one agrees with O'Connor's ideas or not, they were certainly articulated with eloquence. Anyone who enjoys the "classic" outdoor writers of the '40s and '50s should definitely add this book to their library. It's interesting to note that at the same time, in the tradition of reprinting vintage firearm literature that has become a Wolfe Publishing hallmark, Elmer Keith's "Sixshooters" is also available again.
—*Michael Korn*



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Just for the RECORD

UTAH CHUB PAINTING BY HAROLD (RICH) STEVENSON

JUST FOR THE RECORD, four Montana fish records fell in 1992. Three of those four were also broken in 1991: bigmouth buffalo, tiger muskellunge, and Utah chub.

Marvin Cerkoney of Shepherd topped the 1991 bigmouth buffalo record by almost 10 pounds. He caught his 45-pounder at Nelson Reservoir on May 31, 1992. The previous record had stood since 1979.

We added the tiger muskellunge to our list in 1990. The 1992 record-setting tiger muskellunge weighed 11.88 pounds. Michael Haney of Chinook caught it at H.C. Kuhr Reservoir on July 25. It passed up last year's record-setter by a little over a quarter of a pound.

The Utah chub caught by Eugene Bastian of Helena earned ink in the record book by besting the 1991 record by .34 pounds. Bastian's chub weighed 1.81 pounds, compared with 1.47 pounds for the 1991 record. Canyon Ferry Reservoir was home for both the 1991 and '92 records.

March 26 was the date, Fort Peck Reservoir was the place, sauger was the fish, and Don Gay was the lucky angler. The Fort Peck resident's fish weighed 7.81 pounds. It topped the previous record of 7.57 pounds caught on the Yellowstone River near Custer in 1990.

You might be wondering what happened to the pallid sturgeon. The pallid has been listed as an endangered species and it's now illegal to possess one in Montana. So we deleted it from our record list because we think it's no longer appropriate to include it . But, just so you know, the pallid of record weighed 60 pounds; it was caught in 1979 in the Yellowstone River.

If you think you've caught a record fish, what do you do? First, you must catch the fish legally. Second, weigh your fish before witnesses on a government-inspected scale such as those found in most grocery stores. Weigh it as soon as possible after you catch it; fish rapidly lose precious ounces that can spell the difference between a record-breaker and a "wanna-be." Third, a Department of Fish, Wildlife & Parks employee must positively identify the fish. It's also a good idea to take color photographs of the fish to help resolve any identification problems.

Although it may sound like a broken record, "records are made to be broken." And the Montana fish records are no exception.—***Kay Morton Ellerhoff***

Montana's Record-Setting Fish (1992)

Species	Weight	Angler	Year	Location
Arctic grayling	2.66 lbs.	Steve Houser	1986	Hyalite Reservoir
Bigmouth buffalo*	**45.00 lbs.**	**Marvin Cerkoney**	**1992**	**Nelson Reservoir**
Black bullhead	1.69 lbs.	Mike Mitchell	1977	Horse Creek (McCone Co.)
Black crappie	3.13 lbs.	Al Elser	1973	Tongue River Reservoir
Blue sucker	11.46 lbs.	Doug Askin	1989	Yellowstone River (near Miles City)
Bluegill	2.64 lbs.	Brent Fladmo	1983	Peterson's Stock Dam
Brook trout	9.06 lbs.	John R. Cook	1940	Lower Two Medicine Lake
Brown trout	29.00 lbs.	E.H. "Peck" Bacon	1966	Wade Lake
Bull trout	25.63 lbs.	James Hyer	1916	unknown
Burbot (ling)	17.08 lbs.	Jeff E. Iwen	1989	Missouri River (near Wolf Point)
Carp	38.50 lbs.	Don Bagley	1986	Eyraud Lakes
Channel catfish	25.89 lbs.	Gordon Wentworth	1984	Fort Peck Reservoir
		Tom Hilderman (tie)	1988	Fort Peck Reservoir
Chinook (king salmon)	31.13 lbs.	Carl L. Niles	1991	Fort Peck Reservoir
Cisco	1.46 lbs.	Jim Liebelt	1990	Dredge Cut Trout Pond
Coho salmon	4.88 lbs.	Irven Stohl	1973	Fort Peck Reservoir
Cutthroat trout	16.00 lbs.	William D. Sands	1955	Red Eagle Lake
Freshwater drum	20.44 lbs.	Richard C. Lee	1987	Fort Peck Reservoir
Golden trout	4.50 lbs.	Tom McGillvray	1989	Lightning Lake
Goldeye	2.91 lbs.	Vance "Bubba" Kielb	1989	Irrigation canal (west of Malta)
Green sunfish	0.56 lbs.	Roger Fliger	1991	Castle Rock Reservoir
Kokanee (salmon)	5.94 lbs.	Forrest Johnson	1976	Pishkun Reservoir
Lake trout	42.00 lbs.	Dave Larson	1979	Flathead Lake (east shore)
Lake whitefish	10.00 lbs.	Ruby Mutch	1986	Lower St. Mary Lake
Largemouth bass	8.16 lbs.	Juanita A. Fanning	1984	Milnor Lake
Longnose sucker	3.27 lbs.	Ray Quigley	1988	Marias River
Mountain whitefish	5.09 lbs.	Mervin "Frog" Fenimore	1987	Kootenai River
Northern pike	37.50 lbs.	Lance Moyler	1972	Tongue River Reservoir
Northern squawfish	7.88 lbs.	Darrel Torgrimson	1991	Noxon Rapids Reservoir
Paddlefish	142.50 lbs.	Larry Branstetter	1973	Missouri River
Peamouth	0.64 lbs.	Gordon Stewart	1991	Ashley Creek
Pumpkinseed	0.95 lbs.	Tim Colver	1985	Milnor Lake
Pygmy whitefish	0.16 lbs.	Orlin Iverson	1982	Ashley Lake
Rainbow trout	29.02 lbs.	Stanley Ross	1991	Kootenai River (David Thompson Bridge)
Rainbow-cutthroat hybrid	30.25 lbs.	Pat Kelly	1982	Ashley Lake
River carpsucker	3.50 lbs.	James Jessen	1991	Yellowstone River near Terry
Rock bass	0.57 lbs.	Don Holzheimer	1989	Tongue River Reservoir
Sauger*	**7.81 lbs.**	**Don Gay**	**1992**	**Fort Peck Reservoir**
Shorthead redhorse sucker	4.68 lbs.	Ray Quigley	1985	Marias River near Loma
Shortnose gar	3.06 lbs.	John Johnson	1977	Fort Peck dredge cuts
Shovelnose sturgeon	13.72 lbs.	Sidney L. Storm	1986	Missouri River
Smallmouth bass	6.09 lbs.	Terry L. Druyvestein	1990	Fort Peck Reservoir
Smallmouth buffalo	10.25 lbs.	Ron Skirvin	1989	Fort Peck dredge cuts
Stonecat	0.42 lbs.	Robert M. Garwood	1985	Milk River at Havre
Tiger muskellunge*	**11.88 lbs.**	**Michael Haney**	**1992**	**H.C. Kuhr Reservoir**
Utah chub*	**1.81 lbs.**	**Eugene Bastian**	**1992**	**Canyon Ferry Reservoir**
Walleye	14.88 lbs.	Duane A. Leidholt	1989	Yellowstone River (near Miles City)
White bass	1.13 lbs.	Ludwig Dubbe	1986	Fort Peck dredge cuts
White crappie	2.38 lbs.	Greg Johnston	1990	Tongue River Reservoir
White sturgeon	96.00 lbs.	Herb Stout	1968	Kootenai River
White sucker	5.33 lbs.	Fred Perry	1983	Nelson Reservoir
Yellow bullhead	0.72 lbs.	Wade Fredenberg	1987	Yellowstone River
Yellow perch	2.37 lbs.	Vernon Schmid	1988	Ashley Lake

***New Montana record for 1992**

CONTRIBUTORS

• "Loon calls flow through our veins, seeping into bones and sinew. For a moment, we become the wild flute music that curls into every recess of the lake " Turn to page 2 and **Deborah Richie's** rendition of "Loon Music," this issue's Watchable Wildlife installment. As she writes, Montanans who share loon country west of the Continental Divide welcome the return of the "primeval birds to lakes that drape like jeweled necklaces upon the glaciated landscape. Loon calls coax the green stems to burst through thawing soils. A bird that looks like winter holds spring in its scarlet eye." Accompanying Richie's thoughtful prose are some wonderful photos of loons: a loon floating in quiet water, a nesting loon with blooming iris, a loon chick emerging from its egg, and many more. The article also contains a sidebar about Lynn Kelly and her "Marathon of Dedication" to loons. Of Kelly, Richie writes, "Loons have become a passion intertwined with pristine lakes and wild calls." Richie is a wildlife interpretive specialist for the Department of Fish, Wildlife & Parks, working in a cooperative agreement with the U.S. Forest Service. From 1989-91, she was the department's watchable wildlife specialist in Helena.

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• To some, "prairie" and "rainbow trout" are poles apart. Not at all. According to **Pat Clancey,** rainbow trout *do* flourish in a short stretch of the Missouri River just below Fort Peck Dam. They arrived between 1950 and 1963, when about 50,000 were planted in the first few miles of cold, fast water below the dam. Then in 1980 and '81, another 38,000 were planted in the dredge cuts. At least some of these survived. As Clancey writes, they began spawning, eventually producing a self-sustaining population. He also adds that the cold water released from the depths of Fort Peck Reservoir worked in their favor. Clancey's projection is that with careful management, this rainbow fishery "will continue to provide a unique opportunity for residents of northeastern Montana, as well as for those willing to make a longer journey to test the waters." After you read "Prairie Rainbows," beginning on page 8, you just might want to make such an expedition. Clancey is a fisheries biologist for the department in Ennis; he previously worked in Fort Peck.

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• **Mike Sullivan** describes Makoshika State Park as "serene, but hauntingly beautiful. Austere, but awesome." He notes that it's proof that badlands can offer some of Montana's most breathtaking scenery. If you need additional proof, the photos he took for the article provide it. At 8,123 acres, Makoshika is Montana's largest state park and its diversity of resources is a powerful drawing card: weird, captivating sandstone formations; an annual Buzzard Day; an outdoor theater performance and "pitchfork" barbecue to benefit the park; a triceratops found in the park that will be housed in a Visitor Center set to open next summer. For a peek at "The Best of the Badlands," turn to page 15. Sullivan is a park operations specialist based in Glendive.

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• Some people call Beth Sorensen the "Florence Nightingale of wildlife rehabilitation." **John Fraley** just calls her "Wildlife Doc." At her facility east of Kalispell, Sorensen cares for more than 50 orphaned or injured animals each year. She says, "Everything I do...is aimed at returning wild animals to their natural habitat." She mimics natural feeding conditions as much as possible. One osprey learned to prey on live fish in a kid's plastic swimming pool. Fraley points out Sorensen's success rate has been excellent: She has been able to release into the wild more than half of the birds of prey and other animals brought to her over the past 10 years. She feels particularly proud of the 30 bald and golden eagles she's rehabilitated. "I have a hard time describing how I feel when I watch an eagle return to the wild," Sorensen says. "It's like Fourth of July fireworks and Christmas rolled into one." For more stories about her unique effort, turn to page 19. Fraley is the department's information officer in Region One (Kalispell). He currently teaches a course in technical writing at Flathead Valley Community College.

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• Pictograph Cave State Park is a Lands Legacy that truly is "A Key to the Past." Although locals knew about the cave, its archaeological significance wasn't discovered until 1937. As **Ken Oravsky** and **Rich Pittsley** write, "It has emerged as one of the richest archaeological finds in the entire Northern Great Plains." Crews uncovered and documented nearly 30,000 artifacts, including stone points, hide scrapers, beads, bone whistles, pottery shards, and much more. The discovery helped answer questions such as: What did these people eat? What kinds of tools did they use? Did they use pottery or baskets? What was the climate like? The writers point out that Pictograph Cave faces many of the same management challenges faced at other parks: It must be accessible so people can learn from it, but its resources must be protected from human impacts. Oravsky is the park operations supervisor for Region Five (Billings). Pittsley is the manager of Pictograph Cave and Chief Plenty Coups state parks. He is based in Pryor. For tantalizing keys to some secrets of the past, turn to page 32.

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• *MO* thanks the following photographers and artists for their contributions to this issue: **Kristi DuBois,** Bountiful, Utah; **Harvey Eckert,** Ennis; **Phil Farnes,** Bozeman; **Diana Haker,** Worden; **Ron Holliday,** Austin, Texas; **Bill Kinney,** Ridgeland, Wisconsin; **Mark Lagerstrom,** Darby; **Alan G. Nelson** and **Rodney Schlecht,** Great Falls; **Doug O'Looney,** Helena; **George Schuyler,** Billings; **Harold (Rich) Stevenson** and **Ben O. Williams,** Livingston; **Jack Stirling,** Troy; **Ed** and **Bobbie Taylor,** Jackson, Wyoming; **Steve Wirt,** Whitefish; and the **Montana Archaeological Survey.** Thanks also to the following contributors who work for the department: **Mike Aderhold,** Great Falls; **John Fraley,** Kalispell; **Jim Liebelt,** Glasgow; **Deborah Richie,** Missoula; **Dan Stinson,** Helena; **Mike Sullivan,** Glendive; and **Bill Thomas,** Missoula.

A Blooming Medley

Golden Columbine (*Aquilegia flavescens*)
— Mark Lagerstrom

Kinnikinnick (*Arctostaphylos uva-ursi*)
— Steve Wirt

Bitterroot (*Lewisia rediviva*)
— George Schuyler

When man worships at the feet of avalanche lilies or discovers the delicacy of the pasque flower, or finds the faint perfume of the phlox on rocky ridges, he will come to know that the real glories are in God's creations.

—William O. Douglas

Pasque Flower (*Anemone patens*)
— Ben O. Williams

As long as I live, I'll hear waterfalls and birds and winds sing. I'll interpret the rocks, learn the language of flood, storm, and avalanche. I'll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can.

—John Muir

Indian Paintbrush (*Castilleja miniata*)
— Steve Wirt

Shootingstar (*Dodecatheon pauciflorum*)
— Kristi DuBois

Mountain Lady's Slipper (*Cypripedium montanum*)
— Rodney Schlecht

Red Monkeyflower (*Mimulus lewisii*)
— Alan G. Nelson

A Key to the Past

by KEN ORAVSKY and RICH PITTSLEY

MONTANA ARCHAEOLOGICAL SURVEY, CIRCA AUGUST 1937

In 1937 and 1938, crews from the Montana Society of Natural History, the Montana School of Mines, the Montana Archaeological Survey, and the Works Project Administration (WPA) recovered nearly 30,000 artifacts from Pictograph Cave. Through study of tools, bones, and other items, archaeologists have learned much about the prehistoric inhabitants of the Northern Great Plains.

IT WAS CALLED FROG'S MOUTH, Inscription Cave, Indian Cave. Oscar Lewis, field supervisor for the Montana Archaeological Survey, recorded the Crow name as "Eh-Cheet-Te-Ka-Pa," or "the cliff that has no roads." In historic times, the Crow avoided it—they feared their enemies could trap them because of the area's sheer vertical cliffs and limited access. Crow oral histories, however, suggest that prehistoric inhabitants may have been the ancestors of some mountain Crow bands of the Apsaaloké.

There is much to learn from Pictograph Cave State Park about prehistoric life in this vast region. Although local people knew about the cave, its archaeological significance wasn't uncovered until 1937. It has emerged as one of the richest archaeological finds in the entire Northern Great Plains. Archaeologists' discoveries at Pictograph Cave have helped answer questions such as: What did these people eat? What kinds of tools did they use? Did they use pottery or baskets? What did they wear? Did people live in small groups or in larger bands? What was the climate like?

Archaeology

On July 15, 1937, crews from the Montana Society of Natural History, the Montana School of Mines, the Montana Archaeological Survey, and the Works Projects Administration (WPA) began excavating at Pictograph Cave. During the next 17 months, crews uncovered and documented nearly 30,000 artifacts. They found stone points, serrated stone blades and choppers, awls, knapping tools, hide scrapers, and counters used to keep score in games (possibly gambling games). They also found beads, worked shell, bone whistles, pottery shards, portions of woven baskets, and arrow shafts. They unearthed bones from 16 different species of animals, including bison, elk, mule deer, antelope, and wolves. Because the cave was dry and sheltered, the excavators also found many plant remains.

By studying these artifacts and their depth and location in the cave, archaeologists learned a great deal more about the prehistoric inhabitants of the Northern Great Plains. Scientists now believe people first inhabited Pictograph Cave between 6,000 and 8,000 years ago.

What Are Pictographs?

Pictographs are images drawn or painted on rock. Early residents made pictographs by applying various types of paint, either with their fingers, the chewed or frayed end of a stick or bone, or other simple brushes. Types of paint varied, and they provide a valuable clue when researchers are trying to date

pictographs. Inhabitants made early paints from clay and vegetable substances such as chokecherry juice, pollen, and charcoal. Sometimes they mixed in animal fat to make the paint last longer. In later years, they obtained paints from Europe in trade and used the paint for pictographs.

Pictographs at the park depict subjects ranging from people and shield-bearing warriors, to animals, coup sticks, and rifles. In 1937, researchers recorded 106 pictographs. We can only speculate about what pictographs represent. Some researchers believe they were offerings, documentation of hunts or raids, notes of spiritual or sacred events, or early pictorial attempts at biography or history .

PHIL FARNES

RON HOLLIDAY

Pictographs—images drawn or painted on rock—were made with various types of paints and applied with fingers or simple brushes. We can only speculate about what the pictographs represent, although the image in the photo above clearly resembles a deer or elk.

History of the Land

The land containing Pictograph Cave was sold to the Montana Highway Commission in 1937. The Highway Commission bought the property to help expedite the WPA's archaeological excavation. In 1948, the Highway Commission deeded the property to the state. The city of Billings administered the site until 1969 when it was turned over to the Parks Division of the Montana Department of Fish, Wildlife & Parks.

Management

Management of Pictograph Cave State Park presents some of the same challenges that managers face at many historical, cultural, and natural parks across the country: The park must be accessible to all people so everyone can experience it and learn from it. Yet managers must protect the park and its resources from human impacts. Pictograph Cave State Park is a cultural park that provides protection for a non-renewable resource. Unlike wildlife, fisheries, or forests, a pictograph or an artifact lost or damaged cannot be "brought back" by good management. It is forever lost.

In 1992, 25,000 people visited Pictograph Cave. They came from nearly every state and province, as well as many foreign countries. Many schools, including local colleges, used the park as an outdoor classroom. With this level of use comes the need to provide some basic development to protect the site. Walkways to Pictograph, Middle, and Ghost caves are paved.

Other development includes interpretive exhibits, restrooms, a parking area, and a house for employees. Park staff stay on the site 24 hours a day during the operating season to provide site protection. Although vandalism and theft in recent years at Pictograph Cave has been minimal, damage to similar archaeological sites in the western United States is growing alarmingly.

In addition to protecting the site from human impacts, the department must also protect the site from natural processes. Seepage currently threatens the pictographs and encrusts them with insoluble salt deposits. Increased moisture in the cave is causing the sandstone on which the pictographs are painted to flake off. Correction of these problems, if possible at all, will be expensive and require the skills of professionals in archaeology, hydrology, rock art conservation, and park management.

Because sites like Pictograph Cave may hold answers to important questions

about the early inhabitants of our region, they are also valuable to scientists.

Why early people lived in Pictograph Cave is not difficult to figure out. All one needs to do is look at the natural shelter, favorable southwestern exposure, and ready access to water, wood, and food. Why people painted pictographs and details of their daily life is more of a mystery. When you stand at the cave's entrance, listen for the sound of the ancient bone whistle found there and envision a successful hunter thousands of years ago painting a pictograph. Through further research at sites like Pictograph Cave State Park, perhaps we can come closer to unlocking the secrets of the past. ■

At Pictograph State Park, managers have a dual challenge: making the park accessible so that visitors can experience and learn from it, while at the same time protecting its valuable resources from human impacts.

Pictograph Cave State Park

Location: Yellowstone County, about six miles southeast of Billings.

Size: 22 acres, owned by the Department of Fish, Wildlife & Parks.

Access: From I-90 at Billings, take exit 452; turn south onto State Highway 87, then turn right onto Coburn Road, which ends at the park in approximately six miles. The last three miles of the road is gravel.

Management goal: To protect and preserve the known and unknown historical and cultural resources within the park, and to provide educational opportunities for the public through site visits, literature, and continued professional research.

Recreational/educational opportunities: Hiking, viewing pictographs, photography, interpretive panels, picnicking. Schools and other groups with over 30 members should make advance arrangements by calling Park Manager Rich Pittsley at 406/252-1289.

Season: The park is usually open from April 15 through October 15, from 8 a.m. to 8 p.m. However, funding uncertainties may require reduced hours or days that the park is open. Check with the regional headquarters office in Billings at 406/252-4654.

Viewing pictographs: The best light for viewing and photographing pictographs occurs between 11 a.m. and 2:30 p.m.

Miscellaneous information: A day-use fee of $3 per vehicle or a $15 annual Montana State Parks passport is required. A small picnic area with restrooms and drinking water is provided. Park employees are usually available to answer questions and provide information. Tours are scheduled for 4 p.m. and 6 p.m. on Sundays and Mondays, from approximately May 30 through September 6. A handicapped-accessible restroom, parking area, and water fountain will be completed later this year. In 1964, Pictograph Cave was designated by the National Park Service as a National Historical Landmark.

Visitor cautions: The pathway to Pictograph Cave is steep and may be too strenuous for some visitors. The trail is not handicapped accessible because of its steepness. Rattlesnakes live in the park and visitors occasionally see them. Visitors should walk carefully and stay on paved trails.

GRAPHIC BY DAN STINSON

MIKE ADERHOLD